REMARKS

In the Office Action the Examiner noted that claims 1, 5-8, 10-34, 38-52, and 56 are pending in the application. The Examiner allowed claims 25, 28-30, 43-47, and 56, and rejected claims 1, 5-8, 10-24, 26-27, 31-34, 38-42, and 48-52. The Examiner's rejections are traversed below, and reconsideration of all rejected claims is respectfully requested.

Request To Withdraw Finality of Office Action

In item 25(B) on page 11 of the Office Action the Examiner quoted a section of the Applicant's arguments regarding claim 12 that were included in the response filed on May 6, 2004. The section quoted by the Examiner lists a feature of claim 12 that is not disclosed by the cited reference, and states that the argument is similar to the "earlier discussed arguments concerning independent claims 1 and 38." The Examiner then stated that:

> Careful examination of claims 1 and 38 shows that NO up/down counter has been claimed in these claims at all. So the argument is moot.

Therefore, the Examiner has determined that the Applicant's argument regarding independent claim 12 is moot because no up/down counter has been claimed in independent claims 1 and 38. The Applicant respectfully submits that the fact that no up/down counter is recited in independent claims 1 and 38 has no bearing on the argument regarding independent claim 12, which does recite the up/down counter.

Careful examination of the arguments presented by the Applicant clearly show that the Applicant is quoting the features claimed in claim 12, and only compares the argument supporting the patentability of claim 12 to the arguments provided for claims 1 and 38. Nowhere does the Applicant state that an up/down counter is recited in claims 1 and 38. The Applicant merely compares the cited references' failure to disclose "latching an average of a predetermined number of the sampled counted results" to the similar deficiencies of the cited reference regarding claims 1 and 38. Further, the Applicant's arguments are supporting the patentability of claim 12 over the Examiner's §103(a) rejections. These §103(a) rejections were not made for claims 1 and 38. The Applicant respectfully submits that it is unreasonable for the Examiner to have disregarded the Applicant's claim 12 arguments due to the fact that a feature of claim 12 is not recited in claims 1 and 38. The argument submitted by the Applicant not only points out the Examiner's misquoting of the features recited in independent claim 12, but also demonstrates the patentability of claim 12 over the cited references. These arguments are valid,

and the Examiner incorrectly and improperly characterized the Applicant's arguments as "moot."

The Examiner has directly incorporated the Examiner's previous arguments from the Office Action mailed February 19, 2004, but, by improperly characterizing the Applicant's arguments as "moot," has not addressed in a reasonable form the arguments presented in the Response of May 6, 2004. As such, there is no apparent argument which supports the Examiner's continued rejection of the claims in view of the Applicant's traversal and which either clarifies the Examiner's position or otherwise advances prosecution. As such, the Examiner has not rebutted the arguments presented by the Applicant in the Response of May 6, 2004.

As noted in at least MPEP 707.07(f), the Examiner is required to answer and address all traversals. This requirement is in addition to any repetition of a previously held position and is required to allow the Applicant a chance to review the Examiner's position as to these arguments and to clarify the record for appeal. Additionally and as further noted in MPEP 707.07(f), a failure of the Examiner to address the Applicant's traversals can be deemed a failure to rebut these arguments so as to admit that the arguments have overcome the rejection. At the very least, the failure to address the Applicant's traversals would render the Examiner's decision to again reject the claims arbitrary and capricious and invalid under the Administrative Procedures Act, 5 U.S.C. § 706, the standard under which such rejections are reviewed in view of Dickinson v. Zurko, 527 U.S. 150, 50 USPQ2d 1930 (1999).

As such, since the Examiner has not addressed the Applicant's traversals presented in the Response of May 6, 2004, it is respectfully requested that the Examiner withdraw the Final Office Action and issue a new Office Action addressing the Response of May 6, 2004. Therefore, it is respectfully requested that the Examiner both withdraw the finality of the Office Action mailed June 15, 2004, and issue a corrected non-Final Office Action. See, MPEP 706.07(d).

Examiner's Discussion of Applicant's Arguments

In item 25(A) on pages 10-11 of the Office Action the Examiner discusses reasons that the Applicant's arguments regarding claims 1 and 38 are not persuasive. The Examiner quotes the following partial sections of the Applicant's arguments filed on May 6, 2004:

> [I]t is apparent that the "averaging of 4 points".. takes place before any value is compared to the "reference light intensity" (Vt of Figure 1). Therefore, only one value, i.e., the average value of the 4 points, is sent to the comparison unit (Element 44 of Figure 1) for adjustment before being sent to the APC processing unit.
>
> This is in direct contrast to claim 1 of the present application, which recites

"sampling the difference between the level of the laser light and the reference level to produce a sampled difference, [and] calculating an average of a predetermined number of the sampled difference to produce an average compared result." This allows....

The Examiner then states that "[c]areful examination of claim 1 shows that the order of calculating the averaged results and comparing them is NOT claimed." The Applicant respectfully submits that this is an unreasonable interpretation of the claim language as claimed, and that careful examination of claim 1 clearly indicates the inherent order of operations which the Examiner claims is absent.

To wit, claim 1 recites "sampling the difference between the level of the laser light and the reference level to produce a sampled difference, [and] calculating an average of a predetermined number of the sampled difference to produce an average compared result." Therefore, an average of the sampled differences is calculated from a predetermined number of the sampled differences. The order of sampling the difference between the level of the laser light and the reference level and then calculating the average of the predetermined number of the sampled differences is both intrinsic and explicit in the language as claimed. One cannot calculate an average of the predetermined number of the sampled differences without first producing the sampled differences, i.e., sampling the difference between the level of the laser light and the reference level. Therefore, the act of sampling the difference between the level of the laser light and the reference level to produce the sampled difference, which the Examiner has characterized as the "comparing," quite obviously comes before the calculation of the average of the predetermined number of the sampled differences.

As such, the Applicant respectfully submits that the claim language referenced by the Examiner clearly indicates that the sampling of the difference between the level of the laser light and the reference level occurs before calculation of the average of a predetermined number of the sampled differences. Therefore, the Applicant respectfully submits that claims 1 and 38 are patentable over the cited references, as presented in the following section.

Claim Rejections Under 35 USC §102

In items 3-8 on pages 2-4 of the Office Action the Examiner rejected claims 1, 23, 38-40, 49, and 51 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,721,579, issued to Ogasawara et al. (hereinafter referred to as "Ogasawara").

Claim 1 of the present invention recites:

A method of controlling power of a laser diode emitting laser light on a disc by

using a difference between a level of the laser light reflected by the disc and a reference level, the difference being detected after the laser light level reflected by the disc is compared with the reference level, the method comprising:

generating a periodic synchronization signal; and

controlling the power of the laser diode in synchronism with the synchronization signal by:

sampling the difference between the level of the laser light and the reference level to produce a sampled difference,

calculating an average of a predetermined number of the sampled difference to produce an average compared result, and

controlling the power level of the laser diode according to the average compared result.

Therefore, the present application recites a method of controlling power of a laser diode emitting laser light on a disc including "sampling the difference between the level of the laser light and the reference level to produce a sampled difference, [and] calculating an average of a predetermined number of the sampled difference to produce an average compared result." Thus, the level of the laser light is compared to a reference level, and the difference between the two values produces the sampled difference. A predetermined number of these sampled differences are then used to calculate an average compared result to be used in controlling the power level of the laser diode. The average of the sampled differences is clearly calculated after the level of the laser light is compared to the reference level, as it is the sample differences that are averaged. And the sampled differences cannot be averaged before comparing the level of the laser light to the reference level to produce the sampled differences. This feature is not disclosed in the image forming apparatus presented by Ogasawara.

Regarding claim 1, the Examiner stated:

> Ogasawara discloses the invention as claimed [see Figs. 1-3, and 8-10], including generating a periodic synchronization signal and controlling the power of the laser diode comprising the steps of:
>
> generating a periodic synchronization signal [fig. 1, unblanking interruption] [col. 9, lines 16-50]; and
>
> controlling the power of the laser diode in synchronism with the synchronization signal by:
>
> sampling the difference between the level of the laser light and the reference level [fig. 1, Vt] to produce a sampled difference,
>
> calculating an average [fig. 1, unit 64] of a predetermined number [4 points] of the sampled difference to produce an average compared result [fig. 1, unit 64], and controlling the power level of the laser diode according to the average compared result [col. 9, line 6 to 65].

The Applicant respectfully disagrees with the Examiner's reading of Ogasawara. Referring to Figure 1, as cited by the Examiner, it is apparent that the "averaging of 4 points" (Element 64 of Figure 1) takes place before any value is compared to the "reference light

intensity" (Vt of Figure 1). Therefore, only one value, i.e., the average value of the 4 points, is sent to the comparison unit (Element 44 of Figure 1) for adjustment before being sent to the APC processing unit (Element 65 of Figure 1). "[T]he detected laser beam intensity is read four times and the average of these values are calculated. The average value is then compared with a reference value Vt of the laser beam intensity, and the APC control is performed according to the difference between these two values" (Column 9, Lines 6-11).

This is in direct contrast to claim 1 of the present application, which recites "sampling the difference between the level of the laser light and the reference level to produce a sampled difference, [and] calculating an average of a predetermined number of the sampled difference to produce an average compared result." This allows multiple sampling of the level of the laser light during each of the synchronization signals, and the differences between each of these respective laser light levels and the reference level can then be used to calculate the average compared result. This allows great flexibility in the "predetermined number of the sampled difference," as recited in claim 1. An entire set of sampled differences collected during one synchronization signal could be used in calculating the average compared result, or a subset of the entire set of sampled differences could be used. Further, entire sets or various subsets of the entire sets of sampled differences from different synchronization signals could be used in calculating the average compared result. For example, eight of eight sampled differences from a current synchronization signal might be used with three of eight sampled differences from the previous synchronization signal to calculate the average compared result.

This is markedly different from the printing apparatus disclosed in Ogasawara, which uses a signal produced by comparing only one signal level with the reference level (Column 9, Line 6 through Column 10, Line 54). This is due to the fact that the only averaging of signals is done before the single signal is sent to the comparison unit. Further, in the printing apparatus disclosed in Ogasawara, there is apparently only one sample of the signal level taken per each of the "unblanking interrupt requests" (which the Examiner has identified as the periodic synchronization signal). Ogasawara states in Column 10, Lines 38-48, that:

> In the present embodiment, the detected laser beam intensity signal S40 is input four times, and these four values are averaged. In the shortest case, therefore, the routine reaches the averaging step 375 after four successive unblanking interrupt requests have been accepted. On the other hand, if some unblanking interrupt request ends in a n unfortunate result that the acquisition of a detected laser beam intensity signal S40 is not completed during a non-printing period (laser is in a forced turn-on state), then the averaging is performed after five or more unblanking interrupt requests have been accepted.

Therefore, only one signal level is apparently sampled per periodic synchronization signal in Ogasawara, and after at least four of these periodic synchronization signals the sampled signal levels are averaged into one value before being compared to the reference light intensity.

Therefore, Ogasawara does not disclose the feature of "sampling the difference between the level of the laser light and the reference level to produce a sampled difference, [and] calculating an average of a predetermined number of the sampled difference to produce an average compared result." Accordingly, Ogasawara does not recite every element of the Applicant's claim 1. In order for a document to anticipate a claim, the document must teach each and every element of the claim (MPEP §2131). Therefore, since Ogasawara does not teach the features recited in independent claim 1, as stated above, it is respectfully submitted that claim 1 patentably distinguishes over Ogasawara, and withdrawal of the §102(b) rejection is earnestly and respectfully solicited.

Claim 23 depends from claim 1 and includes all of the features of that claim plus additional features which are not taught or suggested by Ogasawara. Therefore, it is respectfully submitted that claim 23 also patentably distinguishes over Ogasawara.

Claim 38 also recites the feature of "sampling the difference between the level of the laser light and the reference level to produce a sampled difference, [and] calculating an average of a predetermined number of the sampled difference to produce an average compared result." Therefore, it is respectfully submitted that claim 38 also patentably distinguishes over Ogasawara.

Claims 39-40, 49, and 51 depend from claim 38 and include all of the features of that claim plus additional features which are not taught or suggested by Ogasawara. Therefore, it is respectfully submitted that claims 39-40, 49, and 51 also patentably distinguish over Ogasawara.

Claim Rejections Under 35 USC §103

In items 9-18 on pages 4-8 of the Office Action the Examiner rejected claims 7-8, 10-14, 24, 26, 31, 33, and 42 under 35 U.S.C. §103(a) as being unpatentable over Ogasawara in view of U.S. Patent No. 6,222,815, issued to Nagano (hereinafter referred to as "Nagano").

Claims 7-8, 10-11, 24, 26, 31, and 33 depend from independent claim 1, and claim 42 depends from independent claim 38. Accordingly the arguments presented above supporting the patentability of independent claims 1 and 38 in view of Ogasawara are incorporated herein. Nagano also fails to disclose or suggest "sampling the difference between the level of the laser

light and the reference level to produce a sampled difference, [and] calculating an average of a predetermined number of the sampled difference to produce an average compared result." Accordingly, it is respectfully requested that claims 7-8, 10-11, 24, 26, 31, 33, and 42 patentably distinguish over the cited references.

Independent claim 12 recites:

> An apparatus for controlling a power of a laser diode emitting laser light on a disc, comprising:
> a photo diode which receives the laser light reflected by the disc to generate a current signal corresponding to a level of power of the reflected laser light;
> a comparator which outputs an output voltage corresponding to the current signal from the photo diode compares the output voltage with a reference voltage and outputs a binary decision signal which indicates which of the output voltage and the reference voltage is higher;
> an up/down counter which up/down counts the binary decision signal in accordance with the comparison result of the comparator to generate a count result;
> a laser diode driver which controls a level of the power of the laser diode according to the count result of the up/down counter; and
> an automatic power (APC) controller which controls an automatic power control of the laser diode, the APC controller being interposed between the up/down counter and the laser diode driver, the APC controller sampling the counted result from the up/down counter and latching an average of a predetermined number of the sampled counted results in synchronism with a periodic synchronization signal, and outputting the latch result to the laser diode driver.

In item 13, on page 6 of the Office Action, the Examiner listed the elements of claim 12 that the Examiner asserted were disclosed in Ogasawara. However, while the Examiner listed "the APC controller latching the count result of the up/down counter in synchronism with a periodic synchronization signal," the referenced claim language of independent claim 12 actually recites "the APC controller sampling the counted result from the up/down counter and latching an average of a predetermined number of the sampled counted results in synchronism with a periodic synchronization signal." Ogasawara does not disclose the feature of "sampling the counted result from the up/down counter and latching an average of a predetermined number of the sampled counted results." Any averaging done by the printing apparatus of Ogasawara is done before any signal reaches the comparison unit, and therefore apparently before any signal reaches an up/down counter (which is part of the APC unit in Ogasawara). This is in direct contrast to claim 12 of the present application, in which a predetermined number of the sampled counted results from the up/down counter are averaged, and this average is latched and outputted to the laser diode driver. This deficiency of Ogasawara is not cured by Nagano. Therefore, it is respectfully submitted that the cited references, considered separately or together, fail to disclose or suggest the features recited in claim 12.

Claims 13 and 14 depend from claim 12 and include all of the features of that claim plus additional features which are not taught or suggested by the cited references. Therefore, it is respectfully submitted that claims 13 and 14 also patentably distinguish over the cited references.

In items 19-23 on pages 8-10 of the Office Action, the Examiner rejected claims 5-6, 15-22, 27, 32, 34, 41, 48, 50, and 52 under 35 U.S.C. §103(a) as being unpatentable over Ogasawara and Nagano and further in view of U.S. Patent No. 5,414,692, issued to Aoki (hereinafter referred to as "Aoki").

Claims 5-6, 22, 27, 32, and 34 depend from independent claim 1, and claims 41, 48, 50, and 52 depend from independent claim 38. Accordingly, the arguments presented above supporting the patentability of independent claims 1 and 38 in view of Ogasawara and Nagano are incorporated herein. Referring to Aoki, this reference describes an area FLAG which shows a flag region indicating that a write-in has been performed. An area ALPC (Auto Laser Power Control) shows a blank region, which is a test section for controlling the power level of a laser beam source (Column 1, Lines 40-53). However, similarly to Ogasawara and Nagano, Aoki is silent as to disclosing or suggesting "sampling the difference between the level of the laser light and the reference level to produce a sampled difference, [and] calculating an average of a predetermined number of the sampled difference to produce an average compared result," as recited in independent claims 1 and 38. Accordingly, it is respectfully submitted that claims 5-6, 22, 27, 32, 34, 41, 48, 50, and 52 patentably distinguish over the cited references.

Claims 15-21 depend from independent claim 12. Accordingly, the arguments presented above supporting the patentability of independent claim 12 in view of Ogasawara and Nagano are incorporated herein. Neither Ogasawara nor Nagano disclose the feature of "sampling the counted result from the up/down counter and latching an average of a predetermined number of the sampled counted results," as recited in independent claim 12. This deficiency is not cured by Aoki. Accordingly, it is respectfully submitted that claims 15-21 patentably distinguish over the cited references.

Summary

It is respectfully submitted that none of the cited references, either taken alone or in combination, disclose or suggest the present claimed invention. Thus, claims 1, 5-8, 10-34, 38-52, and 56 are pending in the application.

There being no further outstanding objections or rejections, it is respectfully submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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